Rapid-response surveillance of the first US test market for VLN cigarettes

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Received 1 December 2022
Accepted 6 March 2023

ABSTRACT

Introduction VLN King menthol and non-menthol are the first combustible cigarettes to receive US Food and Drug Administration (FDA) authorisation as modified risk tobacco products. Focusing on the first retail test market, this study characterised VLN advertising, product placement, discounts and price.

Methods All Chicago-area Circle K stores (n=133) were telephoned to assess whether they sold VLN. Single-pack price of non-menthol was obtained in 57 of 100 stores that sold VLN. In fall 2022, trained data collectors visited those 57 stores to assess VLN product placement, advertising, discounts and prices. Paired t-tests compared observed VLN price with telephone price and to price of other cigarette brands.

Results Nearly all stores (91.1%) displayed exterior advertisements for VLN, and 41.1% displayed interior advertising, with 8.9% of stores advertising VLN in the power wall but never in the header row. VLN cigarettes were displayed in the power wall exclusively and among high-nicotine cigarettes. Some VLN marketing claims were not FDA-authorised. VLN advertised a sweepstakes offer and rewards programme. Most stores (85.7%) offered VLN discounts. VLN was priced like a premium brand (mean=$10.90, SD=$1.53), and prices obtained by telephone did not differ from observed prices several months later.

Conclusions Retail marketing strategies for VLN mimic those for high-nicotine cigarettes. Deviations from FDA-authorised marketing claims were evident. Surveillance in future test markets is recommended to assess compliance with marketing claims and examine relative price and discount offers. Of interest is how premium-priced, low-nicotine cigarettes stand to compete in a market dominated by cheaper high-nicotine cigarettes.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ The first combustible cigarettes to be authorised by the Food and Drug Administration (FDA) as a modified risk tobacco product are being test marketed in the USA.

WHAT THIS STUDY ADDS

⇒ VLN has minimal presence in power walls among high-nicotine cigarettes. To offset premium pricing, VLN advertises discounts, coupons and a sweepstakes offer, and co-branding with a store membership app. Not all VLN marketing claims were authorised by FDA, which raises concerns about compliance with FDA authorisation.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Adherence to FDA-authorised marketing claims should be monitored. Consumer surveys in VLN test markets are needed to describe reasons for product trial, characterise early adopters and evaluate motives for discontinuation. In addition, research is needed to evaluate risk perceptions, especially for menthol VLN, given FDA consideration of an exemption for VLN from the menthol cigarette rule.

INTRODUCTION

People do not start smoking cigarettes to become addicted, and 7 in 10 people who smoke want to quit.[1] Most commercial cigarettes are designed with high levels of nicotine that create and sustain addiction, compelling repeated dosing within a day and chronic use over time with exposure to harmful toxins.[2] Fewer than a third of people who try to quit use cessation medications, and the quit failure rate exceeds 90%.[1]

Low-nicotine cigarettes aim to minimise addiction liability by reducing the amount of nicotine in the rod, potentially by over 90%. They are distinct from cigarettes marketed as 'light' or 'ultralight', which as designed enabled compensation and delivered similar levels of nicotine as other cigarettes.[2] The tobacco industry has been capable of reducing nicotine in cigarettes for decades. By the early 1970s, RJ Reynolds and Philip Morris knew of a market for low-nicotine cigarettes, especially 'for smokers who want to quit'.[3] A 1987 Philip Morris analysis identified this market as having the highest potential for growth, with concern for a 'less enjoyable product which will be easier to give up, and finally quit'.[3] Philip Morris estimated the potential market share of a free-standing denicotinised cigarette brand at 1.5%–2.0% or '9–12 billion units'.[3] In the 1990s, Philip Morris released reduced-nicotine cigarettes (eg, Benson & Hedges De-Nic, Next and Merit De-Nic),[4] yet failed to promote them as safer. To do so would require admitting the brand leaders' greater harms. Test marketing was short-lived and RJ Reynolds never commercialised its 'Nicotine Reduction Programme' or 'Project LN'.[5] Vector Group commercialised Quest reduced-nicotine cigarettes in 2002, spending over $25 million on advertising before abandoning the product in 2006.[6]

Reducing nicotine to non-addictive levels was considered by the Framework Convention on Tobacco Control and is a platform of New Zealand's endgame.[7 8] Evidence supports

To cite: Henriksen L, Johnson TO, Mahoney M, *et al*. *Tob Control* Epub ahead of print: [*please include* Day Month Year]. doi:10.1136/tc-2022-057888

Figure 1 VLN non-menthol and menthol cigarettes in a Chicago-area Circle K convenience store, September 2022.

reductions in smoking and nicotine dependence and increases in quit attempts with low-nicotine compared with regular cigarettes.[9 10] Most (76.2%) US adults who smoke support a nicotine reduction product standard.[11] The US Food and Drug Administration (FDA) has authority to adopt product standards for nicotine yields, as long as yields remain above zero. FDA authorisation is required for tobacco product advertisements or labels stating or implying that a tobacco product is less harmful or reduces exposure to a substance (ie, 'modified risk tobacco product' (MRTP)).[1 12]

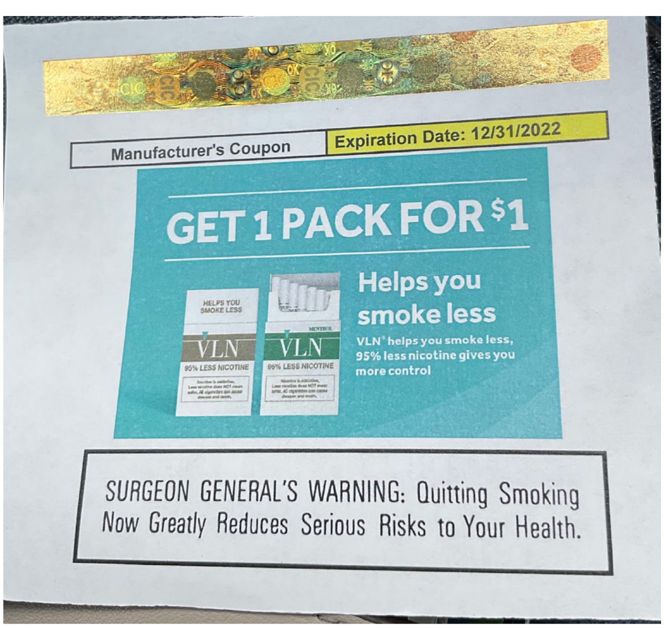

Figure 2 Manufacturer's coupon obtained in a Chicago-area Circle K convenience store, September 2022.

In December 2021, FDA authorised 22nd Century Group's VLN King and VLN King Menthol cigarettes, which have 95% less nicotine than the top 100 brands sold in the USA, to be marketed as reduced exposure MRTPs.[13] In April 2022, 22nd Century announced the first US test market of VLN cigarettes in Chicago-area Circle K convenience stores exclusively.[14] Where and how the first cigarettes to obtain MRTP authorisation would be displayed at the point of sale are unknown. In countries without a tobacco product display ban, branded power walls are a mainstay of tobacco marketing in convenience stores, controlled by contracts with the major companies.[15 16] Focusing on the first VLN test market, this study examined where the cigarettes were displayed and how they were advertised in relation to FDA-authorised marketing claims.

22nd Century planned to price VLN similar to premium brands, at \$9–\$12, depending on excise tax.[14] Research concerning the acceptability of low-nicotine cigarettes or cross-price elasticity with high-nicotine cigarettes suggests that participants purchased more low-nicotine cigarettes under conditions where high-nicotine cigarettes and/or cigars were not available[17 18] and reported they would purchase more low-nicotine cigarettes as the price of high-nicotine cigarettes increased.[19] Therefore, the current study also examined the single-pack price of non-menthol VLN relative to Marlboro (Philip Morris USA), the leading premium brand, and to Traffic (Premiere Manufacturing), Circle K's discount-brand cigarette.

METHODS

Mapping a list of all Circle K stores from AggData, we identified 133 stores located in the Chicago–Naperville–Elgin Metropolitan Statistical Area, excluding 8 in Indiana. After telephoning 133 stores (15 April –4 May 2022), 2 were not Circle K; 1 was permanently closed; 12 were not reached; and 18 did not sell VLN; 57 of the 100 stores that sold VLN reported the single pack price. In these 57 eligible stores, two trained professionals conducted marketing surveillance in between 26 September and 16 October 2022. Using a Qualtrics survey on a hand-held device, data collectors recorded (1) VLN product placement and adjacent products; (2) presence of interior and exterior advertising for VLN, Marlboro, Traffic and other cigarettes; (3) presence of three approved advertising claims on interior ads (with a fill-in for other claims); (4) presence of discounts; (5) single-pack price of non-menthol VLN, Marlboro red and Traffic. Data collectors photographed all exterior VLN ads, which two authors reviewed for unique marketing claims.

Local sales tax rates from the Illinois Department of Revenue were used to convert all single-pack prices to include sales tax. Using SPSS V.27, paired t-tests compared VLN price obtained by telephone versus field observation and compared VLN price to Marlboro and Traffic.

RESULTS

One of the 57 Circle K stores where VLN price was obtained in April–May 2022 no longer sold VLN 5–6 months later. Among 56 stores that still sold VLN, the product was shelved in the power wall next to high-nicotine cigarettes in all stores, e-cigarettes in 19.6% of stores, nicotine pouches in 7.1%, and cigars and chewing tobacco in one store each. No Circle K stores shelved VLN next to FDA-approved cessation products (eg, nicotine replacement patches, gum or lozenges).

Figure 1 shows a power wall dominated by Marlboro advertising in the header row, with VLN cigarettes on a lower shelf. VLN packs feature neon orange stickers with an offer to 'Share your opinion and get \$20', available to the first 200 qualified participants: one adult per household who tried VLN and completed a 15-minute survey at www.capstonesurvey.com.

Nearly all stores (91.1%) displayed exterior advertisements for VLN cigarettes, appearing on store windows and doors, on ice machines, and three-dimensional ads wrapped around light poles and concrete bollards. By comparison, 71.4% of stores had exterior ads for Marlboro, 3.6% for Traffic, and 85.7% for other cigarette brands. Interior advertising for VLN appeared in 41.1% of stores, compared with 100% for Marlboro, 21.4% for Traffic, and 96.4% for other cigarettes. VLN ads appeared on the power wall in 8.9% of stores but never on the header row. By comparison, all stores advertised Marlboro on the header row and elsewhere in the power wall, and 28.6% of stores advertised Marlboro elsewhere inside the store. Consistent with retail marketing strategies for high-nicotine cigarettes, some VLN advertising touted a \$10000 sweepstakes offer, featured a QR code to enrol consumers in VLNRewards.com, or promoted a website about product trial (eg, 'Learn how VLN helps you smoke less at TryVLN.com').

Of three primary VLN marketing claims authorised by FDA,[13] '95% less nicotine' appeared in 60.9% of stores with interior advertising, while 'helps reduce your nicotine consumption' and 'greatly reduces your nicotine consumption' were not observed in stores with interior advertising. 'Helps you smoke less', which FDA approved in the presence of other modified-risk claims, appeared in 56.5% of stores with interior ads. VLN coupons obtained in Circle K stores featured marketing claims that were not FDA-authorised: (1) 'VLN tastes, burns, and smells like a conventional cigarette but contains 95% less nicotine than conventional cigarettes, which greatly reduces your nicotine consumption', and (2) '95% less nicotine gives you more control' (figure 2). Marketing claims in exterior advertising included 'Enjoy true tobacco satisfaction with 95% less nicotine' paired with the FDA-authorised statement 'VLN helps you smoke less'. VLN advertisements displayed a mandatory Surgeon General's warning (eg, 'Cigarette smoke contains carbon monoxide'), and pictures suggested evidence of rotating warning statements required by law. Appearing either on the pack itself or as a separate warning, VLN advertisements included the FDA-recommended voluntary disclaimer: 'Nicotine is addictive. Less nicotine does NOT mean safer. All cigarettes cause disease and death'. Several stores displayed an oversized pack of VLN menthol with the slogan, 'America's lowest nicotine cigarette' with a minuscule disclaimer and warning statement that were not proportional to the pack size.

The price of VLN (non-menthol, sales tax included) obtained by telephone ranged from \$7.20 to \$15.00 per pack (mean=\$10.87, SD=\$1.55), and telephone prices did not differ significantly from observed prices in the same stores 5–6 months later (range: \$9.50–\$15.30) ($p=0.58$). On average, observed single-pack price for VLN was \$10.90 (SD=\$1.53), compared with \$11.18 (SD=\$1.53) for Marlboro (mean difference=−0.24, SD=0.52; $p<0.01$), and \$8.16 (SD=\$1.14) for Traffic (mean difference=2.74, SD=0.56; $p<0.01$). Across all stores, data collectors recorded 10 different price points for 2-pack purchases of VLN, ranging from \$7.89 to \$11.49 (plus tax). Nearly all stores (85.7%) offered discounts on VLN, such as manufacturer's coupons for '\$3 off one pack', '\$20 off one carton' and 'one pack for \$1', which is a fraction of Illinois and federal cigarette excise taxes combined (\$3.99). In addition, some VLN advertising was co-branded with Circle K Tobacco Club, a membership app that prompts tobacco purchases with exclusive discount offers.

DISCUSSION

Past test marketing of low-nicotine cigarette brands manufactured by RJ Reynolds, Philip Morris and Vector Group was discreet with claims, small in scale and short-lived. In contrast, results from retail surveillance in the first test market for VLN suggest that 22nd Century is leveraging its MRTP authorisation for its brand with strategies mimicking retail marketing of high-nicotine cigarettes, though with some competitive challenges.

Exterior advertisements for VLN cigarettes were observed at nearly all visited Chicago-area test market Circle K stores. In tobacco power walls, VLN packs were obscured among the wide selection and better placement of high-nicotine cigarettes. Averaging \$10.90 per single-pack purchase, VLN packs cost more than the \$10.16 average for cigarettes in Illinois.[20] In-store discounts were apparent to offset premium pricing. The extent to which a premium price may deter consumers from switching to VLN warrants further study. Although 22nd Century announced the success of VLN's first test market,[21] analyses of sales data are needed.

Study strengths are characterising retail marketing for the first combustible cigarette to receive FDA's MRTP authorisation and examining VLN price relative to premium and discount-brand conventional cigarettes. A limitation is lack of assessment for inter-rater reliability, although previous studies using similar methods demonstrate that price and marketing can be assessed reliably.[22] Photographs were limited to exterior VLN advertising to avoid store refusals. Therefore, we could not determine whether the pictured power wall is typical of Chicago-area Circle K stores.

VLN sales have begun in Colorado, Arizona, New Mexico and Utah, with expansion to 13 other states announced.[23] Future surveillance should characterise VLN's location in the power wall as well as adjacent cigarette brands and query clerks about sales and customer opinions. To complement retail surveillance, consumer surveys are needed to understand perceptions of VLN packaging and 95% less nicotine, as well as to characterise early adopters of VLN, reasons for product trial and discontinuation. Research specific to menthol VLN is needed, given FDA's consideration of an exemption for VLN from the menthol cigarette rule,[24] related lobbying regarding state and local policies, menthol's role in increasing dependence and misperceptions that menthol products are less harmful.

Acknowledgements Authors are grateful to Lindsey Winn for assistance with mapping and routing, and to Nadia Arouni and Adam Roker for assistance with data collection.

Contributors All authors developed the survey instrument. LH drafted the manuscript and obtained funding. TOJ managed the data collection. MM made significant revisions to the draft. NCS led the analyses. AA programmed the surveillance instrument and collected data. JJP made significant revisions to the draft. All authors reviewed and contributed to the final submission.

Funding Research from Advancing Science and Practice in the Retail Environment is funded by the National Cancer Institute of the National Institutes of Health (grant number 1 P01 CA225597). The content is solely the responsibility of the authors and does not necessarily reflect the official views of the National Institutes of Health.

Competing interests JJP has provided consultation to pharmaceutical and technology companies that make medications and other treatments for quitting smoking and has served as an expert witness in lawsuits against the tobacco companies.

Patient consent for publication Not applicable.

Ethics approval Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

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